

## REMARKS

### **Election**

Applicant appreciates the inclusion of claim 1, which was inadvertently omitted from the listing of claims.

### **Abstract**

Applicant replaces the abstract with an abstract corrected as suggested by the Examiner.

### **Claim objections**

Applicant amends claims 6 and 51 consistent with the Examiner's remarks.

With respect to claims 8 and 9, Applicant points out that "arc" and "catenary curve" are well-defined mathematical concepts that do not need illustration. An arc would be a portion of a differentiable curve, and a catenary curve is the curve that is formed when a cable supported at two posts sags between them. A "bow" is a generic term that includes, among other things, arcs and catenary curves.

Applicant notes that an illustration would be of little use in this context since one cannot easily distinguish, on the basis of a picture, whether or not a particular curve is a catenary curve.

### **Objection to Drawings**

The Examiner objects to FIG. 3 because reference numeral "38" is allegedly not in the specification.

In response, Applicant draws attention to page 5, lines 13-14 of the specification as filed.

Applicant further objects to the drawings as not showing the features of claims 43-44. However, claims 43-44 are method claims that recite steps. These steps are not easily shown in a drawing.

The drawings are further objected to as not showing claim 7's bow or claim 9's catenary. Presumably, claim 8's arc is regarded as being shown.

In response, Applicant notes that an arc is merely a special case of the more generic term "bow." Consequently, any figure that shows an arc necessarily shows a bow.

Moreover, since a catenary is a differentiable curve, and since an arc is a portion of a differentiable curve, it follows that for any arc one can derive a catenary curve such that that arc is a portion of that curve. Thus, any figure that shows an arc can be viewed as also showing at least a portion of that catenary curve of which that arc is a part.

Accordingly, Applicant requests reconsideration and withdrawal of the objection to the figures.

#### **Double Patenting Rejection (section 101)**

The Examiner draws attention to US Application 10/940,468 (hereafter the '468 application) which is a continuation of PCT/US 2004/19883, filed on June 21, 2004, which claims the benefit of the June 23, 2003 priority date of the present application. New matter was added at the time the PCT application was filed. As a result, the inventive entities of the '468 patent and those of the present application differ. The '468 application and the present application were commonly owned at the time the invention claimed in the '468 application was made.

Claim 1 of the 10/940,468 differs from claim 1 of the present application because the former recites a divergence limiting atraumatic light-coupler.

The Examiner states that atraumatic light-couplers are inherently divergence limiting. As a result, claim 1 of the present application allegedly recites subject matter identical in scope to that recited in claim 1 of the '468 application.

If atraumatic light-couplers are inherently divergence limiting, it follows that one cannot possibly make an atraumatic light-coupler that is *not* divergence limiting. Therefore, the proposition that an atraumatic light-coupler is inherently divergence limiting can be disproven by the existence of a single counter-example.

Applicant draws attention to the possibility of integrating a diverging lens into an atraumatic light coupler. By definition, a diverging lens is not divergence limiting. Accordingly, such an atraumatic light coupler is not divergence limiting. This means that the scopes of the two claims must be different. Therefore, a section 101 double-patenting rejection is improper.

Insofar as claims 43-44 are rejected for double-patenting, Applicant points out that those claims are method claims. The '468 application has no method claims pending. Hence, claims 43-44 cannot possibly be identical in scope to any pending claims in the '468 patent.

#### **Obviousness Type double-patenting rejection**

Claim 1 is also rejected as being an obvious variant of claim 1 in the '468 application. Applicant proposes to file a terminal disclaimer if, at the time allowable claims are indicated, those claims are obvious variants of claims that have issued from the '468 application.

#### **Section 102 of claim 1 rejection based on *Moreno*<sup>1</sup>**

The Examiner draws attention to *Moreno*'s paragraph 11, which states that the intended function of *Moreno*'s device is the non-destructive detection of vulnerable plaque.

Paragraph 11 merely recites the intended use of a device. Applicant's claim 1 recites *a structure*, not an intended use. The mere fact that two structures have the same or similar function does not mean that they are the same. There is certainly more than one way to non-destructively detect a vulnerable plaque.

One way to non-destructively detect a vulnerable plaque is to inspect it from a distance without actually contacting it. In this approach, one passes radiation from the device, through the blood, and into the wall. Then, one detects light that passes through the wall, crosses the blood, and re-enters the device. In this method, light traverses the blood-filled gap between the device and the wall twice. A device that carries out this function does not require any atraumatic coupler since such a device never has to contact the wall.

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<sup>1</sup> *Moreno*, et al., US 2001/0047137.

Another non-destructive way to detect vulnerable plaque is to physically contact the blood vessel. In this approach, instead, radiation crosses directly from the device and into the wall, bypassing any blood-filled gap. Such a device would use an atraumatic coupler to contact the wall.

Applicant draws particular attention to claim 1's limitation of

an atraumatic light-coupler in optical communication with the optical fiber, the coupler being configured to atraumatically contact the intraluminal wall;

The only structure in *Moreno* that could possibly be regarded as a light-coupler is the main body **20** that defines the central aperture **23** that directs light to the tissue sample T.

It is apparent from inspection of *Moreno* that the main body **20** cannot be regarded as "configured to atraumatically contact the intraluminal wall." Indeed, the sharp corners of the main body **20** might injure the wall.

It is also apparent that the main body **20** is not intended to physically contact the intraluminal wall. For example, FIG. 13 clearly shows the central aperture **23** being located at some distance from the tissue T. *Moreno* describes this distance as follows: "[i]n general, the fiber-optic probe may be operated relatively close to the vessel wall (<1 mm) to minimize interference from whole blood."<sup>2</sup>

That the main body **20** is intended to be proximate to but not in contact with the wall is a natural consequence of the desire to avoid injury that may result from the sharp corners of the main body **20** as noted above.

Applicant amends claim 1 to more clearly recite a structure that passes radiation directly from the atraumatic light-coupler and into the wall. Such an amendment is not necessitated by *Moreno* because in *Moreno*, there is no atraumatic contact with the wall in the first place.

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<sup>2</sup> *Moreno*, ¶72.

However, Applicant believes that such an amendment more clearly and particularly points out the subject matter regarded as being the invention.

Claims 2-13, and claims 20-21 all depend on claim 1 and are therefore patentable for at least the reasons set forth above. However, these claims may also be patentable for reasons other than those discussed above.

**Section 102 rejection of claim 43 based on *Moreno***

Claim 43 recites:

“placing an atraumatic light coupler in contact with the intraluminal wall.”

The Examiner suggests that *Moreno* discloses an atraumatic coupler that “may be placed in contact with the intraluminal wall.”<sup>3</sup>

Applicant points out that *Moreno* does not actually teach placing the atraumatic coupler in contact with the wall. A reference is good only for what it teaches. One cannot reject a method claim as anticipated because a reference *could have* taught, but did not actually teach, the execution of a particular method step.

The absence in *Moreno* of any teaching for placing the atraumatic light coupler in contact is consistent with the fact that doing so might be dangerous given the sharp edges of the main body 20 of the housing.

Claim 44 includes the limitations of claim 43 and is patentable for at least the same reasons.

**Section 102 rejection of claim 46 based on *Casscells*<sup>4</sup>**

As amended, claim 46 recites the limitation of “the contacting means being in contact with the optical fiber.”

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<sup>3</sup> *Office Action*, page 5.

<sup>4</sup> *Casscells et al.*, U.S. Patent No. 6,615,071.

*Casscells* teaches a device that is intended to form a thermographic image. Each fiber is used to form one pixel of that image. As a result, there are a great many fibers. With so many fibers, it would be impractical to attempt to attach them to a window. Instead they are separated from the window by a gap.

In contrast, the claimed invention is not intended to form an image. Its function is to collect light for spectroscopic analysis. Hence, only a single fiber is used. This fiber is either attached to the atraumatically contacting means or, in some embodiments, integral with the atraumatically contacting means. In both cases, the fiber is in contact with the atraumatically contacting means.

Accordingly, Applicant requests reconsideration and withdrawal of the \$102 rejection of claim 46 and all claims dependent thereon.

#### **Summary**

That Applicant has advanced only selected arguments in support of patentability of selected claims is not intended as an admission that there exist no other grounds of patentability for those or other claims.

Now pending in this application are claims 1-13, 20-21, 43-44, and 46-51. Of these, claims 1, 43, and 46 are independent. No additional fees are believed to be due in connection with the filing of this response. However, to the extent fees are due, or if a refund is forthcoming, please adjust our deposit account 06-1050, referencing Attorney Docket No. 12258-029001.

Respectfully submitted,

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